

SECRET

(When Filled In)

FILE INFO

1 APR 69 05 137

REPRODUCTION PROHIBITED

1 APR 69 05 59

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25X1

IMMEDIATE

IDEALIST

* NO NIGHT ACTION *

TO : JOHN PARANGOSKY

FROM: KELLY JOHNSON

SUBJ: LOX

25X1

AS YOU ARE AWARE, [] HAS SPENT CONSIDERABLE TIME AND EFFORT TO MAKE A NON-FUNCTIONING (VENDOR SUPPLIED) LOX CONVERTER WORK IN THE U-2R ENVIRONMENT. THE ONLY EFFORT EXPENDED BY THE VENDOR DURING THE TIME WE WERE EXPERIENCING LOW PRESSURE WAS TO RECOMMEND ADDING A FILTER UPSTREAM OF THE "INFAMOUS" DIFFERENTIAL CHECK VALVE. WE DID NOT AGREE THAT THAT WAS A CORRECTIVE ACTION BUT RATHER A CRUTCH. WITH A SOUND ENGINEERING APPROACH TO THE PROBLEM, [] INSTRUMENTED ARTICLE 055 AND THROUGH THIS INSTRUMENTATION PROVED BEYOND A SHADOW OF A DOUBT THAT THE ZERO PRESSURES BEING EXPERIENCED WERE DUE TO STICKING OF THE DIFFERENTIAL CHECK VALVE. FROM THIS INFORMATION, [] PROCEEDED TO DEVELOP THE RQ1020 CONVERTER. THIS DIFFERED FROM THE

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CLASSIFIED MESSAGE**SECRET**

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ORIGINAL VENDOR SUPPLIED CONVERTER IN THE ELIMINATION OF THE DIFFERENTIAL CHECK VALVE AND THE NORMALLY OPENING VALVE. OVER 100 HOURS OF LABORATORY TESTING WAS ACCOMPLISHED IN DEVELOPING THIS CONVERTER. ALSO, FLIGHT TESTING WAS ACCOMPLISHED FOR ALMOST THE SAME NUMBER OF HOURS. TODATE, THESE CONVERTERS HAVE NOT EXPERIENCED ANY MALFUNCTIONS DUE TO LOSS OF PRESSURE. THE ONLY COMPLAINT RECEIVED FROM THE FIELD WAS THE FACT THAT THIS SYSTEM OPERATED AT HIGHER PRESSURES THAN THE PILOTS WERE USED TO. ALSO, AS A RESULT OF THE HIGHER PRESSURES THE SYSTEM WAS OPERATING CLOSE TO OR AT RELIEF VALVE PRESSURES WHICH CAUSED SOME GASEOUS OXYGEN TO VENT TO OVERBOARD. AS BOTH THE LAB AND FLIGHT TESTING PROGRESSED, IT WAS EVIDENT THAT THIS LOSS OF GAS INCREASED WITH THE DURATION OF THE FLIGHT. AS A MEASURE TO OVERCOME

25X1 THIS PHENOMENON, LAUNCHED INTO AN IMPROVEMENT MODIFICATION PROGRAM. (THIS IS IDENTIFIED AS RQ1020-100 CONVERTER.) THIS IS IDENTICAL TO THE RQ1020 PREVIOUSLY DESCRIBED EXCEPT THE PILOTS SUPPLY IS TAKEN FROM THE GAS SIDE OF THE CONVERTER WITH THE PRESSURE CLOSING VALVE REGULATING THE PRESSURE BETWEEN 80 AND 82 PSI. AGAIN, WELL OVER 100 HOURS WERE

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EXPENDED USING A BREATHING MACHINE AND SIMULATING VARIOUS CONDITIONS, INCLUDING ALTITUDE CHAMBER TESTS SIMULATING THE ACTUAL PROFILE OF THE ARTICLE. HAVING BEEN FULLY TESTED IN THE LABORATORY, THE CONVERTER WAS READY FOR INSTALLATION AND FLIGHT TEST APPROXIMATELY 3 WEEKS AGO.

[] WAS BRIEFED WITH OUR DATA AS PROFF THAT THIS WAS AN OPERABLE, RELIABLE SYSTEM. WE REQUESTED WE BE ALLOWED TO INSTALL IT AND PERFORM FLIGHT TESTS. NO APPROVAL WAS FORTHCOMING.

ON THURSDAY, THE 27TH, WE WERE INFORMED BY A [] REP THAT TWO SPECIALLY MODIFIED ARO (FIREWELL) CONVERTERS WERE AT [] AND WERE TO BE INSTALLED IN ARTICLE 054. FROM LIMITED INFORMATION AVAILABLE TO [] IT APPEARS THESE

ARO CONVERTERS ARE SIMILAR TO OUR RQ1020-100 EXCEPT THEY HAVE A DIFFERENT PRESSURE CLOSING VALVE AND AN ORIFICE

25X1 INSTALLED. [] HAS REQUESTED [] AUTHORIZATION

TO INSTALL THESE TWO CONVERTERS, AS THIS HAS BEEN THE

25X1 PROCEDURE OVER THE YEARS. [] HISTORICALLY HAS NEVER

CONDONED ANY INSTALLATION IN THE U-2 AIRCRAFT THAT WE HAVE

NOT ADEQUATE ENGINEERING AND TEST DATA AVAILABLE. THEREFORE,

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SINCE WE KNOW VERY LITTLE ABOUT THE ARO MODIFIED CONVERTERS,
HAVE NOT PERFORMED ANY TESTING, WE CANNOT SANCTION THE
INSTALLATION IN ARTICLE 054.

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